IN THE CLAIMS

Claims 1-25 are pending.

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for performing pacing interval optimization, comprising:

(a) producing a signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters;

(b) obtaining measures of pulse amplitude from the signal; and

(c) performing pacing interval optimization based on the measures of pulse amplitude by selecting one of the sets of pacing parameters corresponding to a greatest measure of pulse amplitude as a preferred set.

2. (Canceled)

3. (Currently amended) ~~The method of claim 1, wherein step (c) includes~~ A method for performing pacing interval optimization, comprising:

(a) producing a signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters;

(b) obtaining measures of pulse amplitude from the signal; and

(c) performing pacing interval optimization based on the measures of pulse amplitude by selecting one of the sets of pacing parameters, corresponding to a greatest pulse amplitude variability, as a preferred set.

4. (Canceled)

5. (Currently amended) The method of claim [[4]] 26, wherein the light source and the detector are implanted in the patient.

6. (Original) The method of claim 5 wherein the light source and the detector are not implanted in the patient.

7. (Currently amended) ~~The method of claim 1, wherein step (a) comprises~~ A method for performing pacing interval optimization, comprising:

(a) producing a signal using a non-implanted transducer that measures changes in blood pressure, ~~to produce~~ the signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters;

(b) obtaining measures of pulse amplitude from the signal; and

(c) performing pacing interval optimization based on the measures of pulse amplitude.

8. (Original) The method of claim 7, wherein the non-implanted transducer comprises a pressure transducer.

9. (Original) The method of claim 8, wherein the non-implanted transducer comprises a strain gauge.

10. (Original) The method of claim 1, wherein step (a) comprises using an implanted transducer, that detects heart sounds, to produce the signal.

11. (Original) The method of claim 10, wherein the implanted transducer comprises a microphone.

12. (Original) The method of claim 10, wherein the implanted transducer comprises an accelerometer.

13. (Canceled)

14. (Canceled)

15. (Original) The method of claim 1, wherein each set of pacing interval parameters includes at least one pacing interval parameter, with an initiating event being either a delivered pace pulse or a sensed depolarization.

16. (Currently Amended) The ~~system~~ method of claim 15, wherein each set of pacing interval parameters includes at least one of the following pacing interval parameters:

atrio-ventricular delay;

interventricular delay; and

interatrial delay.

17. (Canceled)

18. (Canceled)

19. (Currently amended) A system for performing pacing interval optimization, comprising:

a pacing circuit to pace a patient's heart using different sets of pacing interval parameters;

~~means~~ a photo-plethysmography sensor for producing a signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters; and

a processor adapted to obtain measures of pulse amplitude from the signal, and to perform pacing interval optimization based on the measures of pulse amplitude.

20. (Currently amended) The system of claim 19, wherein the ~~signal comprises a~~ photo-plethysmography sensor ~~signal, and the means for producing the signal~~ comprises a light source and a detector.

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (New) A method for performing pacing interval optimization, comprising:

(a) producing a photo-plethysmography signal using a light source and a detector indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters;

(b) obtaining measures of pulse amplitude from the signal; and

(c) performing pacing interval optimization based on the measures of pulse amplitude.

27. (New) The method of claim 3, wherein step (a) comprises using an implanted transducer, that detects heart sounds, to produce the signal.

28. (New) A method for performing pacing interval optimization, comprising:

(a) producing an arterial pressure signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters;

(b) obtaining measures of pulse amplitude from the signal; and

(c) performing pacing interval optimization based on the measures of pulse amplitude.

29. (New) A method for performing pacing interval optimization, comprising:

(a) producing a signal using an ultrasound transducer indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters;

(b) obtaining measures of pulse amplitude from the signal; and

(c) performing pacing interval optimization based on the measures of pulse amplitude.

30. (New) A method for performing pacing interval optimization, comprising:

(a) producing a signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters;

(b) obtaining measures of pulse amplitude from the signal by averaging multiple pulse amplitudes measured over a period of time during which the patient's heart is paced using one of the sets of pacing interval parameters; and

(c) performing pacing interval optimization based on the measures of pulse amplitude.

31. (New) A method for performing pacing interval optimization, comprising:

(a) producing a signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters;

(b) obtaining measures of pulse amplitude from the signal each comprising a measure of pulse amplitude variability over a period of time during which the patient's heart is paced using one of the sets of pacing interval parameters; and

(c) performing pacing interval optimization based on the measures of pulse amplitude.

32. (New) A system for performing pacing interval optimization, comprising:

a pacing circuit to pace a patient's heart using different sets of pacing interval parameters;

a pressure transducer for producing a signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters; and

a processor adapted to obtain measures of pulse amplitude from the signal, and to perform pacing interval optimization based on the measures of pulse amplitude.

33. (New) A system for performing pacing interval optimization, comprising:

a pacing circuit to pace a patient's heart using different sets of pacing interval parameters;

a strain gauge for producing a signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters; and

a processor adapted to obtain measures of pulse amplitude from the signal, and to perform pacing interval optimization based on the measures of pulse amplitude.

34. (New) A system for performing pacing interval optimization, comprising:

a pacing circuit to pace a patient's heart using different sets of pacing interval parameters;

an ultrasound transducer for producing a signal indicative of cardiac contractions of a patient's heart, as the patient's heart is paced using different sets of pacing interval parameters; and

a processor adapted to obtain measures of pulse amplitude from the signal, and to perform pacing interval optimization based on the measures of pulse amplitude.